

Table 2a. Showing the main person-related needs identified in the selected papers.

Author	Adolescent specific needs	Need for support with cognitive problems	Need for support with emotional problems	Need for support with social problems	Need for support with physical problems	Need for help with practical difficulties
Foster et al (2017)	Child's age/stage of development at which the injury occurred needs to be considered.		Emotional support to help parents come to terms with their child's injury & guilt about the accident is needed. Professionals need to recognise that parents deferred their emotional needs to attend to those of their child. Emotional support from different support networks is needed. e.g.: parents of other injured children, family, friends, & hospital staff Emotional support comes in different formats: hospital visits, texts, Facebook posts. Professionals need to recognise that parents are often concerned about the emotional impact of injury on the whole family as well as the injured child	Need to balance care of injured child with work/home commitments. Access to a non-medical environment where siblings of injured child can have fun/ continue to play with their injured sibling is needed.	Long term physical impairments need to be recognised	The following are needed: <ul style="list-style-type: none"> • Home visits to solve practical problems before discharge • Practical support at the hospital e.g. affordable parking, food & accommodation. • Help/ advice with financial & employment problems • Help with the costs associated with having an injured child in hospital & parents' need to spend time with them
Roscigno et al (2015)		Post injury cognitive impairments, such as reduced concentration, reduced attention & difficulty processing sensory information need to be recognised.	Emotional support is needed to minimise child's negative feelings Regular communication is needed to develop strong relationships between teachers & parents. Siblings need to	Social isolation & bullying on return to school. Acceptance & acknowledgement of child's disabilities Positive social culture, all children treated equally. Injured child's adjustment to social		Special parking & school building adaptations (e.g. accommodations for wheelchair) are often needed

			<p>understand that the relationship with their injured sibling has changed (e.g. teaching/caring for their sibling & taking increased responsibility for their own care)</p> <p>Injured children need support/ assistance from peers their own age.</p> <p>Injured child can become depressed & have suicidal thoughts.</p>	<p>status in school.</p> <p>Parents used their own social resources to help them support their child's education/act as advocate.</p> <p>Different classroom environments according to policies & school type.</p>		
Bugel (2014)			<p>Family members & professionals need to be mindful of changes in the sibling relationship (e.g. Increased emotional closeness, sibling rivalry, due to the increased focus on injured child).</p>	<p>Siblings of injured children need to be acknowledged by health care professionals.</p> <p>Acknowledgement of their increased responsibilities & disruption to their daily routine.</p> <p>They wanted the opportunity to play & have fun with their brother/sister (even while they were in hospital).</p>		
Karver et al (2014)			<p>Follow up within 1 year with General Practitioner is needed to monitor post injury behavioural problems, & recognition of when to refer to services.</p> <p>Provision of behavioural health & counselling</p>			

			services to address behavioural difficulties are needed.			
Kirk et al (2012)	Need to consider whether changes in behaviour are age related &/or injury related.	Cognitive impairments requiring therapy interventions e.g. memory, concentration, ability to organise oneself & speech need to be recognised.	Parents' feelings of guilt, fear, loss of confidence, isolation & uncertainty about survival or degree of recovery need to be recognised. Opportunity for parents to share the emotional burden & talk to someone is needed. Emotional support to help the injured child deal with feelings of depression, suicidal thoughts. Changes in behaviour: anger, aggression, mood swings, frustration & altered personality are possible & to be recognised & understood.	Understanding from family & friends. Injured child has disrupted relationships with friends' due to extended time off school. Injured children feel socially isolated on return to school.	Physical impairments requiring therapy e.g. mobility, hemiplegia, visual problems, balance, incontinence, seizures are common & need to be recognised.	School building adaptations are often needed
Falk et al (2008)			Opportunity to share the emotional burden & talk to someone is needed. Reassurance to help parents cope with the situation, fear, feelings of guilt & uncertainty about survival or degree of recovery is beneficial.			
Gagnon et al (2008)	Injured adolescents prefer to be treated in a unit with other adolescents.	Strategies to help with concentration need to be offered.	Parents wished to remain close to their teenager throughout episodes of care. Adolescents needed to	Adolescents required peer support. Adolescents need to reintegrate into their environment, return to	Proactive & timely symptom management (including nausea, irritability, headaches, dizziness, fatigue &	

	Adolescents can need confidential discussions away from their parents. Adolescents want to be part of the decision-making process.		be cared for by people with whom they felt comfortable (family or friends).	familiar surroundings & normal activities soon as possible.	sensitivity to noise) to aid return to academic/ physical activity is needed.	
Gfroerer et al 2008			Counselling for behavioural problems is needed.		Need for speech therapy, occupational therapy & physiotherapy is common & should be recognised.	
Glang et al 2008			Support for behavioural problems is needed.		Need for Speech & language services is common & should be recognised.	
Swaine et al 2008	Injured adolescents prefer to be treated in a unit with other adolescents. Health care staff need to be aware of physical, cognitive & social differences between adolescents & younger Children. Confidential discussion away from their parents is needed. Health care staff need training to deal with specific adolescent issues e.g. sex, drugs,		Trusting relationships with health professionals are beneficial. Health professionals need to listen to needs & concerns when voiced.	Peer support & discussions with other adolescents who understand & their problems are needed. Resumption of normal life (leisure, sports, work) as soon as possible is helpful.	Reduction in risk of subsequent injury by wearing protective sports gear is appreciated.	

	alcohol, risk taking behaviours, involvement in gangs & violence. Need to consider the adolescent's occupational profile when deciding if to transfer to adult centre.					
Sabin et al 2006	Problems specific to teenagers (e.g. use of alcohol) need to be recognised.		Emotional support needs to be provided, by a school counsellor. Recognition of symptoms of depression or distress is needed. Referral/ follow up with a mental health counsellor/ school counsellor is needed.		<p>The following are helpful:</p> <ul style="list-style-type: none"> • review by their GP within 1 -year of injury. • Follow up by trauma centre for removal of stitches, manage pain & health maintenance. • Resource support from school counsellor. 	
Slomine et al 2006		Follow up with a counsellor; psychologist or neuropsychologist for cognitive problems is needed.		Social worker review is needed.	<p>The following are helpful:</p> <ul style="list-style-type: none"> • Follow up with physiotherapists, occupational therapist, respiratory therapist, audiologist. • Follow up with a general practitioner or health visitor. • Rehabilitation in a rehabilitation unit. 	

Table 2b. Showing the main service-related needs highlighted in the selected studies.

	Need for Information	Need for educational Support	Need for support across care transitions
Foster et al (2017)	<p>Need for information regarding the following was highlighted</p> <ul style="list-style-type: none"> • Immediate information relating to severity of the injury, to understand the injury, how it occurred & who was responsible. • Short & long term physical impairments. • What to expect from child's physical & emotional recovery in the longer term. • Advice about the criteria for discharge, how to plan for discharge & care for their child at home. <p>On discharge, sharing information & communication between families & local community services was needed.</p>		<p>The following needs to recognised & specifically addressed</p> <ul style="list-style-type: none"> • Careful & extensive discharge planning. • Integration of injured child, parents, family into the community. • Support from the community, family friends to help with the child when they are discharged from hospital.
Roscigno et al (2015)	<p>Information needed to be shared with peers & educational services to improve understanding & recognition of traumatic brain injuries especially when physical impairments were not visible. This should include:</p> <ul style="list-style-type: none"> • what a TBI is; the impact of the injury on emotional & behavioural regulation, personality, cognition (memory problems, headaches, attention problems) & academic ability. • Guidance on activity restriction on return to school. <p>Information should be to be passed on as the child progresses through school years.</p>	<p>Provision of the following are often needed: careful planning; individual learning programmes, classroom assistants, adjusted time tables, specialised services, & regular review of individual learning programmes.</p> <p>Consideration of individual needs when children are placed in special needs classes or home schooling programmes is required, as those services are not always appropriate.</p> <p>Leadership from head teachers is needed to authorise accommodations & educational adjustments.</p>	<p>Communication & meetings between hospital & school services to achieve consensus of care & provide information.</p> <p>Supportive & collaborative environments for the injured child & their family are beneficial.</p>
Bugel (2014)	<p>Siblings of injured children also need to be included in the provision of information & care options for their brother or sister.</p>	<p>Siblings of injured children need to maintain a school routine, despite changes to their daily routine.</p>	
Kirk et al (2012)	<p>Information should be sufficient, easy to understand, delivered in open, honest, proactive manner & maintain a sense of hope.</p>	<p>Education psychologists, school statements.</p>	<p>Preparation & support to deal transfer from Paediatric Intensive</p>

	<p>Information should include: diagnosis, what recovery can be expected & the long-term consequences, what to look for, activity restrictions, how to support their child, provide daily care & access services. Treatment plans should be shared with family</p> <p>Family should be involved in discussions & the decision-making process. Family should be given opportunity & time to ask questions.</p> <p>Wider family & friends need to be educated about the lasting effect of the injury.</p>	<p>Sharing information with peers & teachers to allow educational services to understand & recognise the impact of TBI, despite lack of physical impairment is important</p>	<p>Care Unit to the ward is needed. Increased support is needed when an injured child is discharged home to facilitate access to services, guide parents to care for their child & facilitate recovery.</p> <p>Meetings between hospital & school staff are needed to obtain consensus on need for care provision & information. Provision of a key worker is beneficial.</p>
Falk et al (2008)	<p>Immediate information about the following was needed: diagnosis, how to facilitate recovery, what to expect in terms of recovery, what to look for, activity restrictions, daily care, injury prognosis & long-term consequences.</p> <p>Information about whether parent's immediate management of the injury was appropriate.</p> <p>The entire family need to be included in discussions.</p> <p>Parents of children aged <5 years needed information about whether the injury would affect their child's development.</p>		
Gagnon et al (2008)	<p>Sufficient & immediate information was needed about everyday care, how to facilitate recovery, what to expect in terms of recovery & activity restrictions (especially on return to academic/ physical activity & injury prevention).</p> <p>Parents wanted information about circumstances surrounding injury, when they had not been present.</p> <p>Timely communication & provision of information to people in community settings (including teachers) to increase knowledge about injury management & how the injured child can be supported.</p>	<p>School staff need to understand post injury symptoms, how to support the injured child's return to academic activities & adaptations required to the timetable.</p> <p>A graduated return & more time for assignment submission is often needed.</p>	<p>Parents need to be present during transition between settings, including transport to the hospital.</p> <p>A key worker or follow up phone call from a health professional from the hospital is beneficial.</p>
Gfroerer et al 2008		<p>The following are often needed: special education services, classroom assistant, adjusted timetable, class changes.</p>	
Glang et al 2008	<p>Communication/ meetings between hospital & school to inform school of required services & support is needed.</p>	<p>The following are often needed: special education services, adjusted timetables, class changes, extra time for exams, recognition of the changes in physical & cognitive</p>	<p>Specific hospital to school transitional services.</p>

		functioning, & adjustment to accommodate these changes.	
Swaine et al 2008	Sufficient Information about diagnosis, sequelae of the injury, recovery, guidance about activity restrictions (return to school, sport & work activities) is needed.	Training for service providers about how to manage adolescent specific issues (use of drugs & alcohol) is needed. This could be in the form of conferences or training material.	Continuity & consistency in information delivered by health care providers during different stages of care. Key worker to contact post discharge, who is knowledgeable about the injury.
Sabin et al 2006	General practitioner/school counsellor need to be informed of the adolescent's injury. Injury prevention education is needed.	The following are often needed: <ul style="list-style-type: none"> • Specialised educational services (organised tutoring, study clubs, additional help from teachers). • Adjustment of timetable. • Support from the injured adolescent's peers. • General practitioners' input. Further education to detect new post-injury distress in adolescents.	Communication between trauma centre staff & community services. Trauma centre primary care referral or follow up with school nurse/mental health counsellor/general practitioner post injury.
Slomine et al 2006		Education of general practitioners to recognise cognitive problems is needed. Requirement for specialist education services need to be recognised.	Recognition that needs change during recovery. Paediatricians to be involved in the post-acute care/follow up of injured children.

Appendix 1 An example of the search strategy (Medline)

Needs Assessments Met/unmet needs	Trauma	Limits
((need* ADJ4 (met OR unmet)).ti,ab (need* ADJ2 assess*).ti,ab treatment* ADJ2 gap*).ti,ab "NEEDS ASSESSMENT" "HEALTH SERVICES NEEDS &DEMAND"	(polytrauma*).ti,ab &((polytrauma*).ti,ab (fractur*).ti,ab (physical* ADJ2 abus*).ti,ab ("non accidental injur*).ti,ab ("battered child syndrome").ti,ab "ABDOMINAL INJURIES"/ OR "WOUNDS &INJURIES"/ OR "ARM INJURIES"/ OR exp "BACK INJURIES"/ OR "BATTERED CHILD SYNDROME"/ OR exp DISLOCATIONS/ OR "LUNG INJURY"/ OR "THORACIC INJURIES"/ OR "FRACTURES, OPEN"/ OR "FRACTURES, MULTIPLE"/ OR "FRACTURES, CLOSED"/ OR "SHOULDER FRACTURES"/ OR exp "SKULL FRACTURES"/ OR exp "SPINAL INJURIES"/ OR "KNEE INJURIES"/ OR "FOOT INJURIES"/ OR "ANKLE INJURIES"/ OR "LEG INJURIES"/ OR "FEMORAL FRACTURES"/ OR exp "HEAD&INJURIES"/ OR "HIP INJURIES"/ OR "MULTIPLE TRAUMA"/ OR exp "NECK INJURIES"/ OR "SPINAL CORD INJURIES"/ OR exp "WOUNDS, NONPENETRATING"/ OR "WOUNDS, STAB"/ OR "WOUNDS, GUNSHOT"/ OR "HEAD INJURIES, PENETRATING"/ OR (trauma*).ti,ab OR (injur*).ti,ab OR (dislocat*).ti,ab OR RUPTURE/))	Year: 2005 to Sept 2017 Humans Language: English language. Children: Infant, newborn OR Infant OR Child, preschool OR Child OR Adolescent